A.1.8 FUSE GUEST INVESTIGATOR PROGRAM – CYCLE 5

1. Scope of Program

1.1 Overview

This program element solicits proposals for the acquisition and analysis of new scientific data from the Far Ultraviolet Spectroscopic Explorer (FUSE). The FUSE mission is designed to investigate the nature and physics of interstellar and intergalactic gas, stars, galaxies, and planets through the use of high-resolution spectroscopy of far ultraviolet radiation. This solicitation is for Cycle 5 of the FUSE Guest Investigator (GI) program, to be carried out beginning on or around April 1, 2004, and lasting approximately 12 months.

All of the observing time on FUSE during Cycle 5 will be available to the scientific community through this solicitation; that is, there will be no guaranteed observing time reserved for the original FUSE investigation team. All proposals submitted in response to this program must be for new observations with FUSE. Therefore, investigations that do not require new FUSE observations are not within the scope of the FUSE GI program, including proposals for analysis of archival FUSE data, and, proposals for complementary observations or theoretical work that do not require new FUSE observations.

1.2 The FUSE mission and Scope of Science Capabilities

The FUSE provides high-resolution (R ~20,000) spectroscopy at far ultraviolet wavelengths (905-1187 Å) with sufficient sensitivity to study a wide variety of objects, including many extragalactic lines of sight, and was launched on June 24, 1999. FUSE is a PI-class mission developed in collaboration with the space agencies of Canada and France. The FUSE Principal Investigator, Dr. Warren Moos of The Johns Hopkins University (JHU), is responsible to NASA for the mission design, development, and operations. FUSE is controlled from the FUSE Satellite Control Center located on the JHU campus in Baltimore, Maryland.

The spectral window covered by FUSE permits the study of many astrophysically important atoms, ions, and molecules that cannot otherwise be investigated, including the Lyman series of atomic hydrogen and deuterium, the electronic transitions of H_2, and the O VI doublet, which is a key diagnostic of ~300,000 K gas. Proposers to this Cycle 5 GI program are encouraged to take full advantage of the capabilities of FUSE to address important problems in astrophysics, for example, the study of AGN's and quasars, massive stars, supernova remnants, nebulae, the outer atmospheres of cool stars, planets and their satellites, and comets, as well as interstellar and intergalactic material.

Finally, note that to enable the NASA Office of Space Science to properly evaluate the relevance of proposals submitted to its programs, as well as track its progress towards achieving its goals as mandated by the Government Performance Review Act (GPRA), all research supported by NASA's programs must now demonstrate its relationship to NASA Goals and Research Focus Area's (RFA's) as stated in the latest version of its Strategic Plan (follow links from the Web site http://spacescience.nasa.gov/); see also the discussion in Section

1 of the *Summary of Solicitation* of this NRA. Therefore, all proposers to this program element are asked to state their perception of this relevance in terms of the Goals, Science Objectives, and RFA's given in Table 3 found in the *Summary of Solicitation*. In particular, this program element is designed to help fulfill any of the RFA's for all of the Science Objectives for Goal II of both the science theme "Astronomical Search for Origins" and "Structure and Evolution of the Universe" science theme. The appropriate place for this statement of relevancy is in the introduction to the proposal's "Scientific/Technical/Management" section (see Section 2.3.5 in the *Guidebook for Proposers*). The index numbers in this table may be used to identify a specific RFA, for example, "Goal I, Sun-Earth Connection Theme, RFA 1(c)" or "Goal II, Astronomical Search for Origins, RFA 3(b)."

2. Programmatic Information

2.1 Proposal Submission and Evaluation

IMPORTANT INFORMATION

As discussed in the *Summary of Solicitation* of this NRA, the Office of Space Science (OSS) is now using a single, unified set of instructions for the submission of proposals. This material is contained in the document entitled *NASA Guidebook for Proposers Responding to NASA Research Announcement – 2003* (or *NASA Guidebook for Proposers* for short) that is accessible by opening URL http://research.hq.nasa.gov/, and linking through the menu item "Helpful References," or may be directly accessed online at URL http://www.hq.nasa.gov/office/procurement/nraguidebook.

However, owing to the need to provide electronic data bases both to NASA Headquarters for overall cognizance of its research programs, as well as to the FUSE Satellite Control Center for planning of the new observations requested by the investigations to be selected through this program element, proposers are asked to electronically submit proposal materials to two separate Web sites as detailed below.

2.1.1 Submission of Proposals to the FUSE Cycle 5 GI Program

NASA will review proposals for this program in a two-stage process. In the first stage, proposals will be evaluated with respect to their intrinsic merit and relevance to NASA's objectives. Proposals selected in the Stage 1 review will be awarded observing time on FUSE and become candidates for funding subject to the Stage 2 review process. The proposed cost of the investigation will be evaluated in the second stage.

In order to expedite the proposal review process and the timely selection of scientific peer review panels, investigators intending to submit proposals for participation in this program are asked to submit a Notice of Intent (NOI) to propose by the deadline to the Web address given

in this NRA's *Summary of Solicitation*. Note that a NOI submission is not required but is of considerable value in helping NASA plan for an expeditious peer review of proposals.

Prospective proposers to Cycle 9 of the FUSE GI Program must adhere to the following procedures for the submission of Stage 1 and Stage 2 proposals:

Stage 1

- Electronically submit a *Cover Page/Proposal Summary/Budget Summary* in compliance with Chapter 2.2 of the *Guidebook for Proposers*) at the Web site http://proposals.hq.nasa.gov. Since budget information for this program element is not required until Stage 2, proposers should use a placeholder value of $1 for the proposed cost of the investigation in the *Budget Summary* in order to allow submission. Print and retain the *Cover Page* for use in Stage 2

- Obtain and complete the Cycle 5 proposal form on the FUSE GI Website at http://fusegi.pha.jhu.edu. Submit 12 printed copies of the proposal to the address for proposal submission given in the *Summary of Solicitation* by the Due Date for this program element (see Table 1 in the *Summary of Solicitation* for this NRA). The PI must sign the printed *Cover Page* and attach it as the front of the original of the proposal; copies of the signed *Cover Page* must be attached to the other 11 copies of the proposal that are be submitted.

- E-mail the Cycle 5 proposal form to mailto:fuseprop@pha.jhu.edu. An acknowledgment of receipt will be sent to the proposal submitter by return E-mail.

Note: All printed and electronic proposal materials must arrive at the above address by the Due Date for this program given in Table 1 of the *Summary of Solicitation* to this NRA in order to be included in the proposal review for this cycle of the FUSE GI program.

2.1.2 Evaluation and Selection of Proposals submitted to the FUSE Cycle 5 GI Program

Proposals will be evaluated with respect to the criteria specified in Section C.3 of the *Guidebook for Proposers* (excluding cost), where it is understood that the intrinsic merit of a proposal shall include the following factors:

- The suitability of using the FUSE observatory and data products for the proposed investigation;
- The degree to which the investigation uses FUSE's unique capabilities;
- The feasibility of accomplishing the objectives of the investigation; and
- The feasibility and suitability of the proposed analysis techniques.

Based upon the results of the above reviews, the FUSE Program Officer identified below will recommend a set of proposals to the Director, OSS Astronomy and Physics Division, for selection.

Selected investigators at U.S. institutions, including U.S. Co-Investigators on selected non-U.S. proposals, will be eligible for funding. The selected investigators will receive a funding guideline from NASA based on the scope of the approved observing program and the available budget for the FUSE Cycle 5 GI program. A total of about $2.5 M is planned for the support of up to about 80 Cycle 5 Guest Investigations of one year duration each. A budget summary and narrative description of how the award will be used must be submitted after the receipt of the guideline. An institutional signature is required when the budget is submitted.

2.2 Supplemental Information

Further details of the proposal submission requirements and process may be found at the FUSE GI Program website

http://fusegi.pha.jhu.edu/

which includes a detailed mission description; technical information about the FUSE mission, instrument, and feasibility; detailed information regarding proposal submission, evaluation, selection and implementation; and, instructions for completing the required proposal forms.

Scientific and technical questions concerning this program element should be directed to:

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Programmatic information may be obtained from the FUSE Program Officer:

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